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In This Issue

Article: The Responsibility of Scientists in This Era: W. C. George 369

Report: Education Prepares to Use Television: Franklin Dunham 374

Research: Some Results of a Remedial Reading Program for College Students: Paul Witty, Theodore Stolarz, and William Cooper 376

Events: Education, General or Specialized? The NEA Surveys the Public Schools; The Midwest Inter-Library Center in Chicago 380

Notes and News 381

Recent Publications 383

THE RESPONSIBILITY OF SCIENTISTS IN THIS ERA[1]

By
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As scientists and citizens it is our opportunity and our obligation to strive to create and maintain the atmosphere of science, an atmosphere that contributes to the discovery of truth and the acquisition of understanding and in consequence tends toward the establishment of a society guided by truth and reason. If we are to find our way in the emotional tumult and intellectual confusion of our times, we must take our bearings at intervals and distinguish between will-o'-the-wisps and fixed stars by which we may direct our course. We need to remind ourselves from time to time that truth is the North Star of the intellect.

When St. Paul wrote, "Prove all things; hold fast that which is good," he was expressing the spirit of science. This directive of St. Paul's leaves no sacred cows, neither the theory of evolution, nor the laws of thermo-dynamics, nor any political party, nor the church, nor the theory of the divine right of kings, nor democracy. All is subject to careful scrutiny and analysis, the advocates of measures and principles as well as the measures and principles; those things that are the passionate concern of the moment as well as those things that may be so remote in time, space, or interest as to seem of little concern to us. The extent to which one is willing to examine the facts and accept conclusions critically arrived at is the measure of intellectual virtue.

As workers in the restricted field of physical phenomena, scientists have had brilliant success in mapping the course of the stars and predicting eclipses, in building machines, in generating and harnessing power, in communicating across space, in ameliorating physical hardship, in warding off and curing disease, and in releasing energy from the atom. This success is the result of the application of the scientific method to the solution of problems. The scientific method is essentially a rigidly honest, critical attitude in observing and recording phenomena and an equally honest and critical restraint in drawing positive conclusions from observed phenomena. Men who do not practice this method, who do not have this intellectual integrity, may deal with the materials of science but they are not scientists. Assumptions and imaginings, wishes and fears should always be accepted for what they are, not as facts.

[1] Presidential address before the North Carolina Academy of Science, Greensboro, May 2, 1952.

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I do not mean to imply that assumptions, hunches, hypotheses have no place in scientific thought. On the contrary, they are essential preliminary mental processes. It is good for man to woo inspiration, to let his imagination run riot at times. This is a valid way to begin the search for truth; but one should always keep in mind that these unrestrained imaginings, these inspired flashes of supposed truth that seem so brilliant, frequently turn out to be false concepts, mere hallucinations instead of truth. Before they can be accepted as truth they must be subjected to disciplined, rigorous testing to winnow the solid grain from the chaff.

Man has always observed and drawn conclusions, but he has not always, nor does he now always insist upon rigid criteria of evidence and logical proof. The Chaldeans, whose attainments in mathematical and astronomical knowledge have been proverbial for thousands of years, were said by Ridpath to have been "unable to rise above that superstition which has been the besetting sin of the human mind. They poisoned their scientific teachings with a vast mass of groundless imaginings deduced from their own vague fears and conjectures. Astronomy thus sank to the level of astrology and science in general remained without a fixed limit of certainty." Science was largely in the hands of the priestly class and was used to uphold the prestige of the priests who did not distinguish between fidelity to fact and fidelity to superstition, sophistry, or self-interest.

Much of mankind's error has been due to failure to demand clear proof for the conclusions of abstract reasoning. In aimless browsing through an 1860 school reader I ran across this bit of rare insight written by a man named Chalmers:

> Before the right method of philosophising was acted upon, how grossly did philosophers misinterpret the phenomena of external nature, when a steady perseverance in the path of observation would have led them to infalliable certainty. How misled in their interpretation of everything around them, when instead of making use of their senses, they delivered themselves up to the exercise of a solitary abstraction, and even thought to explain everything by the fantastic play of unmeaning terms and imaginary principles. And when, at last, set on the right path of discovery, how totally different were the results of actual observation from those systems which antiquity had rendered venerable, and the authority of great names had recommended to the acquiescence of many centuries.

In this day of great material achievements of science and great moral and spiritual failure of man, it has become fashionable to credit to science the moral and spiritual failure as well as the material achievements. As men and citizens, scientists are doubtless due to bear their part of the responsibility. The failure is not due, however, to the application of the scientific method and ideal to social problems. It is due rather to our failure to maintain those high ideals of intellectual honesty when considering problems in the social and political realm. We fail in our investigation of physical phenomena when we cheat on those ideals.

As scientists working in the field of physical phenomena we may have an exceptional devotion to truth and to rigor of thinking, but that is not enough. One of the most pressing needs of our times is to carry over into the street and the forum and the church the high regard for truth that we utilize in the laboratory, and without which we make no progress. If we can learn to think rigorously ourselves and create a demand for rigorous thinking, if we can make science contribute to the intellectual virtue and moral beauty of existence (not merely to the gadgets of civilization), then we shall have genuine claim for human regard and honor. Our greatest contribution to civilization and to human happiness would be, not to lay the intellectual foundation for a new drug, or a new engine, or a new production process, or for the growth of two blades of grass where one grew before, but to cultivate in ourselves and to instill into others a devotion to truth and straight thinking through precept and example and exposure of sophistry and fraud. Such an achievement would be one of the greatest spiritual and practical enterprises of our time, indeed of any time.

I do not wish to give the idea that I consider a high regard for truth as the ideal of science alone, or an ideal always held to by scientists. In our courts, for example, that ideal is expressed and demanded as a practical matter in the oath required of witnesses "To tell the truth, the whole truth, and nothing but the truth." All three parts of that oath are essential as an ideal and as a matter of practice not only for obtaining justice in the courts but for the progress of science and sociology and for the progress and maintenance of our civilization.

Whenever one wishes to find or establish an ideal or objective, it is desirable to have some idea of what the thing is. Probably before, and certainly ever since Jesus said to Pilate, "Everyone that is of the truth heareth my voice," and Pilate asked "What is truth?" men have been concerned about the proper answer to Pilate's question. Someone has said that "Truth is the beginning of every good thing." Another has flippantly but wisely said that "Truth is the proper stuff to answer questions with." The concept of some reporters, columnists, and commentators seems to be that Truth is a collection of facts embellished with enough imaginings to make a good story or to put over the writer's opinion. To some others Truth is the dominant public opinion of the time. To the Protestant fundamentalist Truth is whatever is in ac-

cord with his own interpretation of the Scriptures. To the authoritarian Truth is the edict handed down by the ruling hierarchy. To the scientific mind nothing should be asserted to be true other than that which is susceptible of proof, although a thing may be assumed tentatively to be true. The humble scientist recognizes, of course, that there may be, doubtless are, many truths not yet discovered, that "there are innumerable truths with which we are not yet acquainted."

For the purposes of this essay, there is a satisfactory dictionary definition of truth: "Conformity to fact or reality, exact accordance with that which is, or has been, or shall be."

One should not make the mistake of thinking that the inculcation of habits of rigorous thinking and the establishment of truth as the measuring rod of assertions are easy assignments. Intellectual indolence is only one of the obstacles to that goal. Powerful opposition is encountered among ambitious and cynical seekers of power and among sincere followers of liberalism, traditionalism, and orthodoxy. It is difficult to know which of these groups is most dangerous or which is the greatest hindrance to honest and effective thought.

In the Iron Curtain countries tyranny has been established partly through the crude process of revolution by force and partly through the more subtle use of slogans and promulgation of half-truths and whole lies. Being aware of the power of ideas, the Soviet masters now tell the people what to believe, and they prohibit consideration of any other concepts. They are impressing on the people scientific concepts that support their social and philosophical doctrines. According to Soviet philosophy man is a product of his environment. In order to establish environmentalism in the minds of the people, the knowledge and theories about heredity that have been established during the past 50 years have been denied. This in itself would not be bad, necessarily, since it is a good thing at intervals to call into question and re-examine what has become widely accepted. But the Communists do not wish re-examination of facts and theories; only that scientists must accept party-line science and teach it to the people. This they must do or suffer the gravest consequences. Accordingly the Soviet Academy of Sciences[2] by the decree of 1948 purged Soviet institutes of "western rottenness" in biology and directed the rewriting of textbooks in accord with Michurinist doctrine, which asserts, for example, that under changed environmental conditions wheat can be transformed into rye.[3]

More recently in China the Communist press has announced that "Officially approved Soviet theories of heredity are to form the basis for teaching in Communist China." It is stated[4] that "Reactionary theories on heredity propounded by Mendel, Weismann, and Morgan have already been deleted from biology textbooks for the senior and middle schools. . . ." It is ordered, furthermore, that "In dealing with the origin of human thought and knowledge, it is necessary to set forth in detail the theories of Pavlov . . ." and that "In dealing with Einstein's theory of relativity, attention should be centered on those aspects in support of dialectical materialism while the backward aspects of the theory should be refuted. . . ."

The book, "Education in Soviet Lithuania,"[5] edited by the Minister of Public Instruction, states:

> The teaching of history in secondary schools opens up to students the path of mankind's development towards communism.
>
> The teaching of natural science, based on the Michurin science, strives to give the student the firm, logical, systematic information of the basic Michurin biology, to open to students the vista of the principles of animal and plant life, and, in this manner, to help them in forming their scientific outlook, based on dialectical materialism.

We might view this situation with some complacency, if it were limited to the territory of our enemies, feeling rather sure that in time it would destroy their material strength through the destruction of their science. But such limitations do not exist. Even in this country there seems to be an increasing number of people who would defy the truth and subvert the intellect of our people in order to gain their objectives. Some of these are found listed in "American Men of Science," some are in the ranks of the clergy, and some are found among the highest as well as the lowest echelons of politics and government. Others, because of their good hearts and frail intellects, are deceived by the smooth language of humanitarianism into support of and evangelism for theories and measures without ever having analyzed them to see if they are founded on truth or falsehood or both.

Some of the popular theories that have been elevated virtually to the status of creeds are based on a large element of truth with a hidden, or perhaps an open, element of falsehood. An element of truth sometimes blinds people to an inner false core. And yet the introduction into a calculation of one false factor or the exclusion of a pertinent true one may lead to an entirely false conclusion. For example, a mathematician calculating the trajectory of an artillery shell could omit the factor of gravity or wind resistance only at the risk of hitting friendly forces rather than the enemy.

We have our doctrinaire pseudo-science, too. One hears it over the radio, in lecture rooms and pulpits. One sees it in newspapers, magazines, and books. In a doctrinaire chapter of one of our university text-

[2] *Journal of Heredity*, 42: 69f.
[3] *Ibid.*, 42: 122f.
[4] *Ibid.*, 42: 69f.
[5] *Ibid.*, 42: 284.

books one finds the assertion, without supporting evidence, that "Love of money, of fighting, or of anything else is not carried specifically in the human germ cells." That would seem to imply, if it means anything, that here is no genetic base for the difference in temperament of a bull-dog and a rabbit. Such an assertion is not in accord with common observation. Has anyone found or seriously sought for scientific evidence for the categorical statement just quoted? And yet it forms the basis for radical social programs.

Our founding fathers considered it "self-evident that all men are created equal," meaning, no doubt, equal in their right to justice and fair dealing, an interpretation that has generally prevailed throughout most of our history. In this epoch, however, one finds it implied on all sides that all men are born equal in physical, mental, and creative capacities, a concept so utterly contrary to evidence as to be ridiculous. Such assertions of falsities are not merely innocuous random mouthings of the stupid. In part they are the devices of the immoral and the subverted to gain or hold power through the illegitimate interpretations and use of slogans of democracy. One of the unfortunate side effects of the glorification of democracy is the apparently widespread tacit acceptance of the idea that whatever you can get a majority to vote for is true and right. Democracy as expressed in representative government, which replaced the one-time sacred theory of the divine right of kings, appears to be the best form of government yet devised to bring out the potentialities of individuals and to protect the people from enslavement by tyrants; but if we allow democracy to be debased and used to subvert the minds of men it can itself lead to national destruction or tyranny.

Liberty, equality, and fraternity are virtuous abstractions, but they are not valid substitutes for reasoned analysis of complex human problems. When substituted for reason in the time of the French Revolution, destruction, murder, and chaos followed.

Widespread personal and official disregard for and rejection of tested truth in favor of a personally or officially preferred concept has become a conspicuous phenomenon of contemporary life. We are concerned not so much with the questioning or denial or support of concepts of science or of human relations as with the character of the evidence or pressure used to bolster the denials or support. Our concern begins when the validity of concepts is determined by mere assertions or by the conformity of concepts to political, religious, or social philosophies which are themselves based on assumptions or belief. We cannot allow rhetoric and clever publicity to supplant proof based on facts.

This is an era when propaganda is big business. The government and various well-heeled organizations dominated by ambitious, willful, and sometimes fanatical men strive to control public opinion with little regard for ethics. Keeping on the track of truth in matters of great public significance becomes, therefore, a difficult task. It would help if we could keep ourselves aware of the techniques used to mislead and corrupt public opinion.

One effective technique widely used is the establishment of committees and commissions of "experts" appointed ostensibly to study problems and discover the truth, when in reality the object is to select, fabricate, and distort facts so as to provide argument and seemingly virtuous bases for previously determined programs. Some of these "studies" are instituted by governmental agencies and by religious and educational groups. Very commonly, when we hear of commissions being set up for study and recommendation, we can predict in advance what the findings will be if we know in advance the ideology or objectives of the people selected to do the study or of the people who selected them. This sort of situation is not one to be viewed with complacence.

A somewhat similar procedure is the organization of "seminars," "work shops," or "study groups" within our colleges (and church circles) for the extracurricular and sometimes intracurricular promotion of programs and ideologies. Those who have bothered to investigate some of these projects know how propagandistic and distorted their information and presentation are.

"Re-education" of peoples is currently a familiar expression and program. It is often proposed to use the schools and churches for purposes of re-education. The real purpose is to indoctrinate people, somewhat clandestinely, with the particular ideologies of those directing the re-education. We have seen schools created for purposes of propaganda, and we have seen some of our older schools staffed or infiltrated with biased people whose intent it is to determine the philosophy of the young generation. This sort of thing is not the proper function of the schools, certainly not of our public schools, and should not be connived at. The proper function of those schools is to teach the rudiments of knowledge and to develop skill in observing and analyzing data, in drawing correct conclusions, and in understanding why effects follow causes.

Another method used to influence men's minds without due analysis of the facts is that of controlling or influencing the distribution of information. There are many ways of doing this. It has become well understood these past few years that partisan book reviewers in leading book-review publications have given a favorable press to party-line books and have ignored or

given an unfavorable press to opposition books. Sometimes, too, news is controlled at its source by those in authority. In an article in *The Atlantic* (July, 1951), James S. Pope, managing editor of the *Louisville Courier Journal,* and a director of the American Society of Newspaper Editors, makes the statement that "Outside of the Iron Curtain, Washington is one of the few world capitals where the right of the people to know is scorned," where it is being established that news of the government should be allowed to get out only in processed form. Under such conditions, people need to be reminded that whenever information is restricted, conclusions should be only tentative.

Other unethical devices commonly used to win public acceptance of causes are lifting quotations out of their context or twisting them a bit to suit particular purposes; repeatedly asserting, without supporting evidence, that something is good or bad, that it is the will of God, or that it is Christian or American; and in other ways giving a cause a good name with the expectation of avoiding critical examination of it.

Possibilities for the wholesale perversion of the intellect have grown enormously through the extensive development of journalism, moving pictures, radio, and television. So long as the control and direction of these means of communication remain widely diffused, various propaganda projects tend to cancel each other. When, through monopoly or infiltration, these means of communication come under the control of an aggressive group that is intellectually and politically immoral, their power for evil is great. It has been estimated that admissions to picture shows in this country in a two-week period are approximately equal to the total population of the country. A. L. M. Wiggins, former Undersecretary of the Treasury, said recently that these modern means of communication have been used to bring about emotional reactions that would support the socialization of the government and trend towards Communism. It seems possible certainly to arouse emotional reactions in support of almost any program which may or may not be in accord with justice and right.

Granting the magnitude and danger of the chicanery that goes on in this country and the world, is it any of the scientist's business? Should he not stick to his animals and plants, his atoms, molecules, and vibrations and leave affairs of the world to men of the world? My answer to the latter question is "No." We need more men who first of all learn the method of science and then carry that method over into the field of thinking about human affairs. They should not distort their science for political purposes nor allow their politics to corrupt their science, but insist upon valid data in both areas. Those of us who have engaged in experimental research know that the most plausible and beautiful theories sometimes turn out to be wide of the mark. And yet in the field of human relations, we go all out in the promotion of the most revolutionary and fateful programs merely because they seem to conform to superficial ideas of logic or virtue.

As teachers it is not sufficient for us to give our students a bit of information about gametophytes, the structure of the hemoglobin molecule, or the relations of the sella turcica. The principal part of our function as teachers is to recognize and promote the search for truth, to avoid and expose demonstrable error, to encourage and assist our students in their endeavor to think straight not merely to talk fluently, and to help them cultivate a capacity for straight thinking and consequently for safe judgment. If we cultivate in ourselves and in our students a proper respect for evidence, we can do much to promote virtue, to expose charlatanism, and to reveal the fallacy in the misguided though sometimes sincere enthusiasm for programs of indoctrination that would undermine the critical integrity of education.

Not only is it our function as scientists to enumerate the specific characters of *Polysyncraton amethysteum* and to calculate the distance between Betelguese and the North Star, but to translate our science into values in human terms. Building bigger dams, bridges, and ships, creating new chemical compounds, breeding new strains of animals and plants, devising new means to avoid and cure disease are important products of science, but our greater goal is to acquire the knowledge and understanding and the habits of mind that make us shun error and embrace truth. Unlearned men have a right to expect of learned men an honest and reasoned presentation of progression from cause to effect in considering decisions in areas of necessary action. As men who have had special training in distinguishing between the true and the false, scientists owe it to themselves and to mankind to keep bright the lamp of truth and to prevent its penetrating beams of light from being dimmed and smothered by the fog and smoke screens thrown up by the pleaders of special causes and selfish interests.

It may be that we are as inadequate in this duty as men of other callings, although it is easier to see the motes in our brothers' eyes. It is easy to see that frequently the primary objective of the politician, the clergyman, the social reformer is to induce people to believe a specific concept or body of doctrine arrived at through inspiration or cunning or by dictation rather than to examine the facts and discover if the proposition is sound. Perhaps they are more excusable in their sinfulness than we since their training commonly has been in the technique of influencing

public opinion rather than in objectively weighing evidence. We can serve our time and generation, all future generations, by insisting that problems and proposals be weighed in the balance of truth. We know that we cannot synthesize a hydrogen bomb or a hormone by disregarding the truth, but sometimes we seem to think that educational, social, and political policies are exempt from such rigid tests.

As scientists and citizens let us have faith in truth and honesty and straight thinking. Let us not be Tories or Jacobins, Reactionaries or Liberals, but scientists bringing the methods of science to bear on the human problems that deeply affect our welfare and that of future generations. And let us judge men on the basis of their dedicated commitment to the seeking for truth rather than on their learning or eminence or their skill in telling the populace what they want them to believe.

Reports . . .

EDUCATION PREPARES TO USE TELEVISION

FRANKLIN DUNHAM
Chief of Radio-Television
Office of Education, FSA

WHENEVER a new invention, capable of constructive use, is introduced into the world educators take a long look at it, weigh its possibilities for educational purposes on the one hand, and on the other look critically at it to decide whether or not it carries seeds of its own destruction. When television was hinted at in 1932, was actually experimented with in programming in 1936, and then died aborning in 1941, there was plenty of time to evaluate its potential for education or for any other purpose. In 1946, World War II being over, it came out of the laboratory a vastly improved version of even the 1941 model.

The Federal Communications Commission had created a precedent in 1945 in setting aside the 88–92 megacycle band for the exclusive use of noncommercial educational FM radio. Some 134 stations are now listed as "noncommercial educational," servicing nearly every area of the United States, owned and operated by our colleges and school systems. It took no long flight of the imagination on its part, therefore, to see that television, with what seemed to be a vastly ever-important educational potential, might possibly be similarly protected and in the beginning, rather than after 25 years, as in the case of radio.

The U. S. Office of Education took the initiative, as in the case of FM radio, and early in the fall of 1950 invited the National Association of Educational Broadcasters and the Association for Education by Radio to call a meeting of representatives of *all* education in our country to organize for the scheduled November hearings of the FCC, wherein education would have an opportunity to tell its story to the commission. Some 87 representatives, headed by the U. S. Commissioner of Education, comprising men and women from the principal educational groups of America, appeared at these hearings under the auspices of the Joint Committee on Educational Television which had been formed at the Office of Education a month previous to the hearings.

The purpose of the commission was to discover what interest the educator had in television channels. Not a dissenting voice came from education. The only dissents came from a few representatives of commercial television who plead that any setting aside of television channels for education was unnecessary. This plea, successfully made in 1936 in relation to radio, made little impact in 1950. The record of 14 years was too clear, and successful operation of education's own radio stations too apparent.

Therefore, under the "Sixth Report and Order" of the FCC, dated April 14, 1952, applying to the reallocation of television channels, education received 242 assignments of channels out of approximately 2,000 made available, or about 12 per cent of the television frequencies of the United States, this reservation to apply subject to review until July 1, 1953.

In the FCC rules applying to the conduct of noncommercial educational television stations, a fine understanding of the educator's needs and requirements was apparent. For example, a station operating noncommercially may of course not sell time nor in any other way make a profit, but programs may be accepted which are totally paid for by either public service or industrial groups, and full credit for such financing of the program may be given pictorially, not as an advertising message verbally, but as an appropriate recognition of the "sponsoring" organization. Thus, thousands of industrial and other valuable films may be used, and likewise thousands of original programs, tailor-made for specific instructional purposes, may also be accepted with complete costs paid for in advance. This advantage alone can materially reduce operating budgets of the noncommercial educational stations.

The assumption was made by educators generally that television possessed inherent advantages as a medium for education not held by any other avenue of communication. Some have gone so far as to say that it compares in its impact on society with Johannes Gutenberg's invention of the printing press exactly

five hundred years ago, except more so! We know what the printed word did to bring enlightenment and understanding to the world. We would be unrealistic if we did not appraise as well the devastating effect of the "Big Lie" and the twisted, biased, and inaccurate information capable of being carried by any means of communication. World War II is too close to us to forget Hitler, Mussolini, and their satellites, and the present world situation is too tense for us to underestimate, let us say, Stalin's potential use of television. Therefore, television possesses a challenge to the very purpose of education in a free society. It is important to all of us in the widest use of this medium, to become concerned as to what programs it carries and who directs these programs for education. Obviously it is the business of educators to educate, and within the framework of this area they cannot evade that responsibility.

On analysis, it is discovered that television can (1) attract and hold interest, (2) stimulate both the active mind and the imagination, (4) add greatly to retentiveness of knowledge required. The printed word and the spoken word, when given due emphasis following the rules of unity of thought and coherence, are both capable of this, but to what degree? The United States Navy Special Devices Center at Port Washington, New York, set up a series of tests and experiments in which the Office of Education cooperated as early as 1948. Preliminary results completed by Robert T. Rock of Fordham University have now been published. They are as basic to our thinking today as were the early experiments of Cantril and Allport[1] at Harvard in 1935 on the comparative impact of the printed and spoken word in the acquiring of knowledge and the stimulation of thought and action. The first tests[2] were made on "The comparative effectiveness of instruction by television, television recordings, and conventional classroom procedures." The results from these control-group tests with men in our Navy show live television to possess superior means of teaching over the compared media and methods. The second tests were run in retention of learning and are called "A Study in Learning and Retention."[3] They show like results in the superiority of television's use in group teaching. These publications are available at the Radio and Television Services, Office of Education, Washington 25, D. C. Further tests are now being made in a number of universities in order to carry on study of this medium as an instructional aid.

More common perhaps even than tests is actual personal experience with the medium. Over 100 school systems now use television in some fashion, either for supplementary classroom instruction or for public information. Several school superintendents and school boards credit TV programs, showing the work of the schools, in winning widespread support of bond issues for school buildings and improvement. *Life's* city-to-city systematic campaign in 1951 sent crews of TV experts over the country to put on two-week series of frequently 30 to 40 programs specially designed for that purpose. Some 65 colleges and universities have produced successful educational programs even though (to date) only one college, Iowa State College (Ames), is actually operating its own TV station, WOI-TV.

In further analyzing results of television, it is interesting to discover the way it makes its impact: (1) through appeal by emphasis to concepts already established in the mind, (2) through appeal to the emotions, (3) through appeal to the sense of enjoyment and pleasure associated with past experiences. Motion pictures possess the same types of appeal, but are not so easily available. The one factor constantly stressed by those who use television which isolates it in value above all other media is its immediacy; the realization that what we see and hear is actually happening at the moment we view it. Another factor is the multiplied value of original effort, reducing costs for any increased number of participants. A third factor resides in its flexible character; it is capable of correcting discoverable errors while in action or in any repeat performance.

In order to bring us up to date: Its acceptance by educational institutions through the actual taking up of the channels set aside by the FCC on April 14, 1952, and made available for application on July 1, 1952, is now apparent. The following have acted to date: Kansas State College (Manhattan); Dade County Vocational School, Miami (Fla).; New Jersey State Department of Education, to operate its first station at Rutgers University (New Brunswick); Allan Hancock Foundation at the University of Southern California (Los Angeles 7); University of Houston (Tex.) and the Houston school system; the Bay Area Educational Television Association of San Francisco; the New York State Board of Regents with applications at Albany, Rochester, Syracuse, Binghamton, Buffalo, New York City, Ithaca, and Utica. (Two more are in process from Poughkeepsie and Malone.)

Of these the following have received FCC construction permits to build stations immediately: Kansas State College, the first to receive a noncommercial

1 "The Psychology of Radio." New York: Harper and Brothers, 1935.

2 "Training by Television—Comparative Effectiveness of Instruction by Television, Television Recordings and Conventional Classroom Procedures." Office of Naval Research, U. S. Navy, 1952.

3 "Training by Television—A Study in Learning and Retention." Office of Naval Research, U. S. Navy, 1952.

educational license; University of Houston; Allan Hancock Foundation; and the New York State Regents at Albany, Rochester, Buffalo, Syracuse, and New York City.

Out of a total of 14 applications in 60 days, assignments were made by the FCC to eight institutions and cities. New York State represents the nucleus of a state-wide network. Such networks are being planned also in Connecticut, Pennsylvania, New Jersey, North Carolina, Oklahoma, Texas, California, and Wisconsin, as immediate projects.

Over 450 educational institutions and school systems are in various stages of planning to utilize television. Only 242 channels are available and 14 have been acted upon, eight granted in 60 days. It is reasonable to assume that by 1954 the educational facility of the United States will have 100 such stations as its strong ally in doing its unusually important job.

In this program it is no longer necessary to convince teachers and administrators of the usefulness of television to them and their enlarged communities. It is not necessary to convince them, either, that in order to do their job well they must have their own television station or a co-operative stake in one. The men to convince now are the men who finance the work of education. The university trustees, the school boards, the state legislatures, or city councils are now pondering the problem of an average $250,000 per station expenditure and a $100,000 yearly operating cost. The justification consists in more service to more people at a lower per unit cost.

The line of approach and attack upon the problem of financing and acquiring these facilities has been greatly helped by a Ford Foundation grant of $5,000,000, announced this month for help in building stations and in setting up a central programing center by the Joint Committee on Educational Television, operating under the Ford grant of $145,000 this year to help in legal and engineering matters and by the Office of Education in expert help and guidance on the total problem and especial services in programing and direction.

Research . . .

SOME RESULTS OF A REMEDIAL READING PROGRAM FOR COLLEGE STUDENTS

PAUL WITTY, THEODORE STOLARZ, AND WILLIAM COOPER[1]
Northwestern University

THIS paper presents a short description of a program for reading improvement conducted at Northwestern University during the 1951–1952 academic year. Although the Psycho-Educational Clinic has, in the past, among its other services provided help in reading for some university students and has for several years given guidance in reading to freshmen enrolled in the School of Education, the clinic did not attempt to offer a program for all freshmen in the university until 1951–1952. At this time a broader program was initiated. The program for the freshmen was administered through the office of the dean of students.

Need for a college reading program.—There has been an increased awareness that many college students are seriously in need of assistance in reading. And there is clear evidence that most of these students can improve their reading ability greatly by systematic practice. Moreover, improvement in reading ability often helps them in their total adjustment in college, giving them greater ability to deal with the reading requirements of their subject fields and freeing them to spend more time in leisure reading and other activities. Accordingly, many college officials are coming to look upon a reading-improvement program as a service that should be extended to their students.

Reading retardation among college students.—Formal instruction in reading usually ceases after the sixth grade of the elementary school. The large number of poor readers and the demands for varied reading skills make clear the need for remedial and developmental programs in the upper grades and at the high-school level. Moreover, since reading requirements in college make greater demands upon the student in terms of both comprehension and rate of reading, it is important that every college student develop efficient and economical habits of reading.

Numerous surveys[2] have shown that many college students are limited by inefficient and inadequate reading ability. Other surveys[3] made in the past decade

[1] Jean Sibley and John Haberland participated in this program which was administered by F. G. Seulberger, dean of students.

[2] L. Brown. SCHOOL AND SOCIETY, 67: 387–390, May 22, 1948, pp. 387–88. H. J. Tyler. *Junior College Journal*, 4: 28–31, August, 1933, p. 28. F. O. Triggs, "Remedial Reading: The Diagnosis and Correction of Reading Difficulties at the College Level." Minneapolis: University of Minnesota Press, 1943, p. 3. R. Strang. *The English Journal: College Edition*, 26: 548–559, September, 1937, p. 549 (420.5 E 582c)–C697.

[3] P. A. Witty. SCHOOL AND SOCIETY, 52: 564–568, November 30, 1940, p. 565. W. W. Charters. *Journal of Higher Education*, 12: 117–121, March, 1941, p. 117. F. O. Triggs. *Journal of Educational Psychology*, 33: 678–685, December, 1942, p. 678. F. Lindquist, "Reading Services Provided for Students in Representative Colleges and Universities for the Academic Year, 1947–1948." (Unpublished Ph.D. dissertation, Northwestern University, 1949.)

indicate that the number of colleges offering services for the retarded reader is small.

From these surveys it seems that only a small number of colleges and universities are offering programs for reading improvement. Certainly much still remains to be accomplished in providing remedial reading instruction as well as in initiating developmental reading at the college level.

The procedure used at Northwestern University to identify students in need of help.—Since personnel and facilities set limits on the number of students who could be given training in reading at Northwestern University, the program was planned to be primarily a service for the freshmen.

The screening test.—At Northwestern University, the American Council on Education *Cooperative English Test (Higher Level)* is administered as a part of the entrance tests to all prospective students. This test contains sections testing reading comprehension, mechanics of English, and effectiveness of expression. The reading-comprehension section consists of two parts which yield a vocabulary score and speed of comprehension and level of comprehension scores. These three scores are combined to form a total reading-comprehension measure. This score was employed for screening.

The lowest 15 per cent of the approximately 1,200 students, 180, were selected on this basis. Although additional students might well have profited by such a program, it was decided in a conference between the director of the clinic and the dean of students that the service would necessarily have to be limited to those students whose needs for reading instruction appeared most insistent. Accordingly, opportunity was offered to those who fell in the lowest 15 per cent.

These 180 students were sent a form letter from the office of the dean of students suggesting that they report for additional testing by the *Iowa Silent Reading Tests*. One hundred fourteen complied. After the Iowa Tests had been scored, it was decided that all those falling below the 55th percentile should be encouraged to avail themselves of the reading service. A second letter was sent from the dean's office to these students' parents. Ninety-six of the 114 received this letter, but only 42 chose to enroll for the work in reading.

Table 1 includes data from the American Council Test for the 180 students who took the first test, the 114 who took the Iowa test, and the 42 who enrolled in remedial reading classes.

It is interesting that those students who took the Iowa test and those who took the remedial training are quite similar to the total group in terms of average scores and variability. It seems that putting the Iowa test on a voluntary basis may have resulted in the elimination of many students who needed help greatly.

TABLE 1

SCORES OF STUDENTS TAKING THE ACE COOPERATIVE ENGLISH TEST

	Range of scores in scaled score points	Mean score	Sigma
The 180 selected as lowest 15 per cent of freshman class	35–56	47.24	4.12
The 114 of the 180 taking the Iowa test	37–56	47.90	3.44
The 42 of the 180 taking remedial reading	36–53	47.64	3.88

The Diagnostic Reading Test.—The Iowa Silent Reading Tests consist of seven subtests which furnish nine scores—rate, comprehension, directed reading, poetry comprehension, word meaning, sentence meaning, paragraph comprehension, use of index, and selection of key words. The median of the nine subtest scores is used to determine the student's grade percentile and grade equivalent.

Table 2 presents the data from the Iowa test for the 114 students who took this test and for the 42 who enrolled for remedial training.

TABLE 2

RESULTS OF THE IOWA SILENT READING TESTS GIVEN TO THE STUDENTS WITH LOW READING SCORES

	Range of scores in standard score points	Mean	Sigma
The 114 students taking the Iowa test	145–202 (57 points)	174.0	10.05
The 42 students taking remedial reading	143–188 (47 points)	174.15	9.75

The mean for the 114 students is equivalent to the norm for grade 13. The 42 students who enrolled in the program are similar to the 114 in mean scores and in measures of variability.

The scores of the 114 students on the Cooperative English Test were correlated with their scores on the Iowa test. The coefficient of correlation was +.36 with a P. E. of .05. The lack of agreement between these tests may be attributed to the varying content in the tests as well as to the select nature of this group, but the coefficient suggests that the tests may be measuring somewhat different phases of reading ability.

In addition to the 42 freshmen enrolled in the reading program, there were 48 college students who also sought help in reading from the clinic. Table 3 presents data concerning the initial status of this group on the Iowa test.

TABLE 3

IOWA TEST SCORES FOR THE 48 UPPERCLASS STUDENTS ENROLLED IN THE READING PROGRAM

Mean standard score	Grade percentile of mean scores	Sigma
180	48 percentile (Grade 13)	12.30

Characteristics of the students.—After the tests were given and observations were made, the following underlearned and inefficient types of reading were found to be characteristic of the students.

a. They read most materials at a very slow, uneven rate.

b. They read almost everything in the same manner and at the same rate. They lacked the ability to adjust their rate of reading to the type of material or to their purpose for reading.

c. They were more successful in reading very short passages than in getting the meaning from longer passages or from entire chapters of books.

d. They lacked accuracy in their reading. They comprehended little of the materials read and gained a false impression of many presentations.

e. They lacked the ability to concentrate upon difficult materials and were unable to sustain their effort for periods of time sufficient to enable them to complete their assignments.

f. They had poorer than average vocabulary scores. They lacked an understanding of the precise meanings of many words and had a poor comprehension of the specialized vocabularies of the different subject areas in which they had to read.

g. They did very little leisure reading. The majority of these students read little except magazines in addition to their assignments.

h. They lacked the ability to comprehend important details in many types of presentations.

i. They were unable to organize materials read and to present the facts in clear outline form.

j. They did not read critically and were unable to discern contradictions or inconsistencies in many presentations.

These students were not seriously retarded in reading according to the test norms. However, all of them recognized that their reading was insufficient and they wanted to improve. Since they were carrying a full load of college work, they felt the pressing need for accurate, rapid reading skills.

Nature of the program.—The students met three times each week for a single hour. There were five to seven in each group. For most of them, the remedial work was planned for a single term of nine weeks. However, opportunity was provided for additional work during the second term for students who desired to continue this work.

Following are the activities included in the program:

1. Rapid reading of fairly easy, interesting material to break habits of word-by-word reading or reading by short phrases rather than by larger eye-span segments. These materials were frequently read on the "Reading Accelerator."[4] Four machines were available. The selections which the students read at first were short stories or magazine articles of eighth- or ninth-grade difficulty.

2. *Leisure reading.* An interest inventory was used to ascertain the areas of greatest interest to each student. An effort was then made to obtain appropriate reading materials. In addition, some students chose to read novels that they had planned to read "some day" and others read nonfiction ranging in type from legal cases and mechanical manuals to popular biographies.

3. *Speeded reading practice.* Periods of time were limited to fifteen or thirty minutes outside the time of the reading program. Records of rate and comprehension were kept by each student.

4. *Training in recognizing short phrases flashed by a Keystone Flash Meter tachistoscope.*[5] This practice was designed to encourage rapid recognition of groups of words. Two or three students worked with the tachistoscope while the rest of the group was occupied with other activities. This training was limited to about ten minutes per session. Most of the students became very proficient at this activity and discontinued it after a few weeks.

5. *Vocabulary building.* Exercises were planned to enable students to obtain the meanings of unfamiliar words from their context. Students also kept records of new words encountered in various types of reading. The importance of vocabulary in each subject area was stressed throughout the program, and students kept lists of key words and their meanings. These lists were frequently reviewed and related to assignments and to textbook reading.

6. *Attack on specific reading skills.* Materials for this work were designed to satisfy each student's needs as revealed through diagnostic tests and observations. The following books were employed:

1. N. Lewis, "How to Read Better and Faster." New York: Thomas Y. Crowell Company, 1950.

2. L. C. Pressey, "A Manual of Reading Exercises for Freshmen." Columbus: The Ohio State University Press, 1947.

3. R. Strang, "Study Type of Reading Exercises."

[4] The "Reading Accelerator" of Science Research Associates, Chicago.

[5] "Flash-Meter" tachistoscope of Keystone View Company, Meadville, Pa.

New York: Bureau of Publications, Teachers College, Columbia University, 1935.

4. Stroud and Ammons, "Improving Reading Ability." New York: Appleton-Century-Crofts, Inc., 1949.

5. F. Triggs, "Improve Your Reading." Minneapolis: University of Minnesota Press, 1942.

6. Wilking and Webster, "A College Developmental Reading Manual." New York: Houghton Mifflin Company, 1943.

The exercises in these books included attention to such skills as skimming, reading for details, reading to get the general thought of paragraphs, and critical reading. The skills were emphasized in the reading of assignments as well as in the work of these manuals.

7. *Use of the tests and the accompanying Progress Folders in the Science Research Associates Better Reading Books.*[6] These books provide short selections of timed reading to yield a record of the student's gains in rate and comprehension of reading. The graphs on the progress folders afford a good motivating device.

8. *Opportunities to select and practice reading different kinds of materials.* These students came gradually to recognize the value of employing discrimination in the selection of materials and in the choice of the method to be used in reading. They learned to select materials for skimming, for precise reading, for leisure reading, and for other purposes. They also developed the tendency to skim some materials, to read others carefully, and to apply study skills to other presentations.

9. *Frequent individual conferences.* Particular problems and needs of each student were studied and materials and methods to overcome difficulties were discussed in short individual conferences with each student.

10. *Help in reading textbooks.* Graphs, illustrations, and charts were analyzed and vocabulary was examined in each text. The organization of the textbooks was also studied. This part of the program appealed strongly to the students and enabled them to sense the practicality of the program.

Gains made—results of training.—The results of this program were gratifying. Both the instructional staff and the students felt that the program had proved successful.

Standardized Test Scores.—Test-retest scores for the Iowa Silent Reading Tests showed that gains had been made. The average initial median score for the freshmen enrolled during the fall and winter quarters was 171, which corresponds to a grade percentile of 28. Their average terminal score was 182 which corresponds to a grade percentile of 52.

The average initial median standard score for students who voluntarily enrolled for the winter quarter and the spring quarter, most of whom were upperclassmen, was 180 which corresponds to a grade percentile of 48. Their terminal median score was 191, which corresponds to a grade percentile of 76. Thus for the entire group the average beginning score was 176, or the 39th percentile; the average terminal score was 187 or the 64th percentile. Table 4 presents data for the two groups showing their status at the beginning and at the end of the training.

TABLE 4
GAINS MADE ON THE IOWA TEST

	Average standard score		Grade percentile of average score (13th-Grade Norms)	
	Initial	Terminal	Initial	Terminal
Freshmen	171	182	28	52
Upperclass students	180	191	48	76
Total (all students)	176	187	39	64

Gains in rate of reading.—A remarkable gain was made in rate of reading. The average rate (for relatively easy materials) at the beginning of the program was 272 words a minute. After the program was completed the students read the same type of materials at an average rate of 474 words a minute. There was, of course, great variability in the gains made by individual students. However, every student improved in reading rate and some of the gains were very large. Comprehension scores also tended to improve.

The student's reaction to the value of the program was sought on a questionnaire. Eighty per cent indicated that the reading program had been of value to them in their college work. Following are some of the comments made by students: "The course did me a lot of good. It improved my reading. I have noticed that it takes less time for me to read a novel than it did last year." "I enjoyed working in this course and found it helpful to me in many ways." "I believe this course did me more good than any regular academic course." The students felt that applying reading techniques to college materials, individual work with instructors, and vocabulary building were most helpful and deserved the largest amount of attention in such a program.

Conclusion.—The results of the reading-improvement program show conclusively that great gains in reading skill can be made by college students if they follow a systematic program. Since the program described in this paper was in operation for a single term only, the largest gains were made in such skills as rate of reading a..d simple comprehension rather than in broader abilities such as critical reading or discrimination in the selection of reading materials. Greater gains would undoubtedly result from longer

[6] E. Simpson, "Better Reading Books." Chicago: Science Research Associates.

periods of sustained effort. However, the gains made are extremely important and are individually serviceable. To be able to read at a rate of 474 words instead of 272 words a minute constitutes an important acquisition for any student. This gain is particularly valuable when one recognizes that scores on tests of comprehension as well as reading speed showed considerable improvement. Then, too, improvement in other reading skills such as in the vocabulary of the subject fields represents a great asset for the college student.

The fact that some reading skills most needed by college students are acquired slowly indicates the need for developmental reading programs in the college as well as the high school. As long as reading instruction is terminated in the upper grades of the elementary school and reading instruction is infrequently given in the high school, there exists a great need for corrective or remedial programs in college. The limitations of such programs are clearly evident and are the best argument for giving continuous attention to reading skills throughout the educative process. However, the gains that can be made in a short period devoted to remedial work certainly justify this effort.

Events . . .

EDUCATION, GENERAL OR SPECIALIZED?

IT is not so long since the proposals began to be put forward to make general education the basis of a liberal-arts course in order to offset a tendency toward too narrow specialization and fragmentation of education. In the brief period that has elapsed "general education" has already ceased to have any common connotation. The term has been defined with a range stretching from its use in the Harvard Committee's Report on General Education in a Free Society to a program for "life adjustment."

An inquiry into the varied interpretations of general education in practice would yield interesting results. The discovery is not unlikely that some of the courses that constitute part of a general-education program have themselves become specialized or new courses in which the contributory subjects are hardly recognizable. It is also not improbable that there are differences in emphasis when the same course is given by different institutions with a leaning to that part of the course in which each is a specialist.

While this may be true, it is doubtful whether a sound argument can be found for a return to specialization except under one condition—a thoroughgoing reform of the Ph.D. system. The requirements for this degree encourage specialization that is rigid and narrow; to use the hackneyed description, candidates study more and more about less and less. Before World War II a committee in one of the nation's leading universities spent several years in considering plans for the reform of the Ph.D. requirements. The committee recommended that course requirements be abolished and that candidates for the highest degree be given the freedom of the university. The idea was rejected both by the members of the faculty and by the students. The latter preferred specific course requirements so that they might understand exactly what would be expected of them. The former, it was suspected, did not favor the committee's recommendation because they could not imagine what to substitute for formal courses. The committee was not seeking to create academic unemployment, but to meet the tendency to narrow specialization by giving students an opportunity to become acquainted with the various facets of the university of learning.

Given the right teachers, specialization need not be narrowing. The type of preparation that is now provided tends in the main to encourage that narrowness against which the proposals for general education were put forward as a protest. To students whose requirements are restricted in the main to one department the "flower in the crannied wall" remains the flower in the crannied wall. Until teachers, not only in colleges but also in high schools, receive in their preparation a broad and enlightened vision of the potentialities of their own special subjects, education will have to be organized by formulas, particularly at that stage of their education which the increasing number of students look upon as an interval imposed upon them before they begin their preparation for what they regard as the real business of life—a vocation or a profession.—I. L. K.

THE NEA SURVEYS THE PUBLIC SCHOOLS

Too few young men and women, according to the Research Division of the National Education Association, are entering teaching as a profession, probably because of the more attractive economic prospects in business, military, and government and because of heavy military manpower demands. Some 45 states surveyed expect to be short of teacher-in-training for elementary-school positions for the next three years, while nine states expect to be similarly short of prospective secondary-school teachers.

The average salary of all instructional personnel (classroom teachers, principals, and supervisors) is $3,530 this year, according to the report, an increase

of 4.9 per cent over last year's estimated salary. Most of the gains, however, do not reflect a comparable increase in purchasing power; on the whole the economic status of the teacher, over a period of years, has declined.

In discussing current and future shortages of buildings and classroom facilities, the report indicates that during the past few years about one child in 50 has been deprived of full-time schooling because of teacher and building shortages.

Some 24 of the states studied expect the shortage of rural elementary-school buildings this year to be "considerable"; eight states expect the shortage to be "very large." The forecast of urban elementary-school-building shortages remains about the same as last year's, but the report notes that the impact of high birthrates in the 1940's is beginning to be felt in building shortages at the secondary-school level. Birthrates may, it is predicted, continue to hold up, and peak enrollments in both elementary and high schools may not be reached until well into the 1960's.

While teacher qualifications are creeping slowly back to prewar status, the report estimates that 64,000 classroom teachers in the current year hold substandard certificates. In 1941 only one public-school teacher in 340 had lower qualifications than those legally prescribed. In 1951–52 one teacher out of every 15 held a substandard certificate; one teacher in 16 holds such a certificate in the present year.

THE MIDWEST INTER-LIBRARY CENTER IN CHICAGO

THE Midwest Inter-Library Center in Chicago, the establishment of which was reported in SCHOOL AND SOCIETY, March 26, 1949, has issued its third annual report, covering the first year of actual operations. During the first year the center transferred from its 15 member libraries 300,000 volumes of books and periodicals and 12,693 volumes of newspapers. These storage deposits, together with infrequently used research materials received from other sources, add up to more than a third of a million volumes acquired during the first twelve months of operation.

The heaviest deposits were in four classes: state documents, 5,855 lineal feet; college catalogues, 5,090 feet; dissertations, 3,900 feet; and textbooks, 2,900 feet.

The center serves 15 university libraries by providing co-operative storage for their less-used books, periodicals, and newspapers. Once in the center, these materials are equally available to all the member institutions. The center also acquires direct from suppliers further research materials for which one copy is felt to be sufficient to serve the research needs of the community of participating libraries. New acquisitions are purchased from the center's own book budget which in turn is supported by assessments against the 15 participants.

During the year just passed, subscriptions were placed to 23 foreign newspapers and 16 United States newspapers on microfilm, none of which is being received individually by any of the member libraries. The center has been receiving state documents from all 48 states currently, as well as Federal "processed" publications through a membership in the Documents Expediting Project. Seventy-two American foreign-language newspapers are being received currently, as well as the entire output of French university dissertations.

A fragmentary-sets program brings together partial runs of periodicals in the member libraries, and during the year 272 titles received attention and 859 volumes were assembled at the center.

Control of the center is vested in a 15-man Board of Directors on which each of the member institutions is represented. Incorporated in 1949, the Midwest Inter-Library Corporation constructed its building with a one million-dollar grant received jointly from the Carnegie Corporation of New York and the Rockefeller Foundation. Ralph T. Esterquest is director of the center.

Notes and News . . .

Appointments, Elections, Resignations, Retirements

Francis O. Grubbs, whose appointment as acting headmaster, the Loomis School (Windsor, Conn.), was reported in SCHOOL AND SOCIETY, March 8, has succeeded William Speer in the headmastership. Mr. Speer, who resigned in February, was on leave of absence until August 31.

Burke Boyce, novelist, who had at one time been in charge of the editorial and writing department of the National Broadcasting Company, has assumed new duties as headmaster, the Storm King School (Cornwall-on-Hudson, N. Y.), succeeding Harrison M. Davis, Jr., whose appointment was reported in SCHOOL AND SOCIETY, May 5, 1951.

Nils Y. Wessell, former dean, Tufts College (Medford, Mass.), whose appointment as vice-president was reported in SCHOOL AND SOCIETY, May 12, 1951, has been named acting president to serve until a successor to Leonard Carmichael can be selected. Dr. Carmichael's appointment as secretary, the Smith-

sonian Institution, was reported in these columns, April 26.

Jean Paul Mather, staff associate and assistant treasurer, American Council on Education, will assume new duties in February, 1953, in the newly created post of provost, the University of Massachusetts (Amherst). Mr. Mather will be in charge of the program of instruction.

Earl A. MacArthur, head of the department of English, Champlain College (Plattsburg, N. Y.), has been appointed dean of students to succeed Henry R. Harvat who will assume new duties at the close of the semester as assistant professor of education, Marquette University (Milwaukee). Seymour Pitcher, whose appointment as professor of English was reported in SCHOOL AND SOCIETY, October 13, 1951, will succeed Dr. MacArthur.

T. Reese Marsh, professor of English, the Municipal University of Wichita (Kans.), has been named acting dean of the new College of Adult Education that was authorized, December 1, by the Board of Regents. The college will replace the former Extension Division with an expanded program. Helen M. Crockett, formerly executive secretary of the division, will serve as assistant to the dean.

William A. Spencer, assistant director of public relations, Armour Research Foundation, Chicago, has been appointed director of the Office of Information Services, New York University, to succeed John W. S. Ord.

William D. Larson, professor of chemistry, College of Saint Thomas (Saint Paul 1, Minn.), has succeeded William J. Tomsicek as chairman of the department and director of the division of science and mathematics. Dr. Tomsicek, who has held the chairmanship since 1924 and the directorship since 1933, will devote his time to teaching in the department.

Simon Gruenzweig, formerly assistant professor of mathematics, the Lincoln University (Pa.), has been named professor of mathematics and chairman of the department of mathematics and physics, Philander Smith College (Little Rock, Ark.).

K. J. Arnold, formerly assistant professor of mathematics, the University of Wisconsin, whose resignation was reported in SCHOOL AND SOCIETY, August 2, has been appointed associate professor of mathematics, Michigan State College (East Lansing). Henry Parkus, formerly consultant in aerodynamics, National Company, Boston, has been named to an assistant professorship. Harman Leon Harter, assistant professor of mathematics, has resigned to accept a post at the Wright-Patterson Air Force Base.

Shu-Ching Lee, Robert Campbell, James Burton Daniels, and Luitpold Wallach were recently appointed to assistant professorships in the University of Oregon. Dr. Lee was named assistant professor of sociology; Dr. Campbell, economics; Mr. Daniels, law; and Dr. Wallach, history. Quirinus Breen, professor of history, has been granted a leave of absence for study in Italy. Stanley Spector, instructor in history, has resigned.

At the recent installation of the Reverend Russel J. Humbert as president, DePauw University (Greencastle, Ind.), alumni citations were conferred upon the following "in recognition of outstanding achievements and services which reflect honor upon DePauw University": Henry G. Badger, educational statistician, Office of Education, FSA; Ray F. Dawson, professor of botany, Columbia University; George W. Gore, Jr., president, Florida Agricultural and Mechanical College (Tallahassee); Florence Guild, Shortridge High School, Indianapolis; and Roxy Lefforge, president, Philippine Christian College (Manila).

John W. Nason, whose inauguration as president, Swarthmore (Pa.) College, was reported in SCHOOL AND SOCIETY, November 9, 1940, will assume new duties, January 1, 1953, as president of the Foreign Policy Association, Inc., 22 East 38th Street, New York 16, succeeding Brooks Emeny who has resigned from the presidency but who will remain as a member of the board.

Four new members were recently named to the Educational Policies Commission for four-year terms, beginning January 1, 1953: James B. Conant, president, Harvard University; L. Frazer Banks, superintendent of schools, Birmingham (Ala.); Franc L. McCluer, president, Lindenwood College (Saint Charles. Mo.); and Eva Ott, principal, Crocker Highlands School, Oakland (Calif.). Retiring are: Dwight D. Eisenhower; Eugene H. Herrington, principal, Ebert School, Denver; Henry H. Hill, president, George Peabody College for Teachers (Nashville, Tenn.); and William Jansen, superintendent of schools, New York City.

Paul Henry Fall, president, Hiram (Ohio) College, was recently elected chairman of the division of chemical education, American Chemical Society, for 1953, to succeed Hubert N. Alyea, associate professor of chemistry, Princeton University. Albert B. Garrett, professor of chemistry, the Ohio State University, was named chairman-elect; Frederic B. Dutton, professor of chemistry, Michigan State College, treasurer; and Calvin A. Vander Werf, University of Kansas, secretary (re-elected).

Ernest W. Tiegs, whose appointment as editor-in-chief, California Test Bureau, 5916 Hollywood Boulevard, Los Angeles 28, was reported in SCHOOL AND SOCIETY, December 21, 1946, will resign on December 31 to devote his full time to writing, editing, and lecturing. Dr. Tiegs is coeditor of the Tiegs-Adams Social Studies Series published by Ginn & Company and of the Ronald Press Company Series of College Textbooks in Education.

Recent Deaths

Roy Clarence Friesner, dean, College of Liberal Arts and Sciences, Butler University (Indianapolis), died, December 1, at the age of fifty-eight years. Dr. Friesner had served the university as assistant professor of botany (1919–22), associate professor (1922–25), professor (since 1925), head of the department (since 1944), and dean (since 1947).

Harvey Nathaniel Davis, president emeritus, Stevens Institute of Technology (Hoboken, N. J.), died, December 3, at the age of seventy-one years. Dr. Davis had served as instructor (1901–04), Brown University (Providence, R. I.); instructor in physics (1904–10), assistant professor (1910–19), and assistant professor of mechanical engineering (1919–28), Harvard University; and president (1928–51), Stevens Institute of Technology.

Henry Holland Carter, former head of the department of English, Indiana University, died, December 3, at the age of sixty-eight years. Dr. Carter had served as assistant professor of English (1908–11) and professor and head of the department (1921–22), Miami University (Oxford, Ohio); assistant professor of English (1914–17) and professor (1917–21), Carleton College (Northfield, Minn.); and professor of English (since 1922), head of the department (1923–41), and acting dean, Graduate School (1932), Indiana University.

John Lewis March, professor emeritus of psychology, Union College (Schenectady, N. Y.), died, December 3, at the age of seventy-nine years. Dr. March had served as teacher of Latin (1893–95), Harry Hillman Academy (Wilkes-Barre, Pa.), and in Union College as instructor in psychology (1899–1903), assistant professor (1903–04), adjunct professor (1904–22), and professor (1922–43).

Helen Elizabeth Diller, former instructor in English, Teachers College, Columbia University, died, December 3, at the age of eighty-seven years. Miss Diller, who had taught (1904–10) in the public schools of Montclair (N. J.) and had held a post (1912–14) in the New York City Public Library, had served the college as assistant in English (1914–16) and instructor (1916–31).

Mother-General Mary Zoe, Sisters of Charity, died, December 6. Mother Mary Zoe had served as principal (1913–19), Saints Peter and Paul School (Detroit); principal (1919–23), St. Mary School (Marion, Ohio), and (1923–27), St. Raphael School (Springfield, Ohio); dean (1927–33), Mount St. Joseph College (Cincinnati, Ohio); principal (1936–38), St. Vincent Academy (Albuquerque, N. Mex.); and vicar-general (1938–44) and mother-general (since 1944), Sisters of Charity.

William Thomas McNiff, professor of physics, Fordham University, died, December 6, at the age of fifty-one years. Dr. McNiff had served the university as instructor in physics and mathematics (1923–27), associate professor of physics (1927–28), and professor (since 1928).

John Leighton Bray, professor of metallurgy, Purdue University (Lafayette, Ind.), died, December 6, at the age of sixty-two years. Dr. Bray had served as professor of metallurgy (1921–22), Nova Scotia Technology College (Halifax, Canada), and professor of metallurgy (1923–35) and head of the School of Chemistry and Metallurgic Engineering (since 1935), Purdue University.

RECENT *Publications*

COLSON, CLYDE L. *A New Plan for the Allocation of State Aid for Schools, VIII.* Pp. iv + 32. Joint Committee on Government and Finance and the Commission of Interstate Cooperation, Charleston, W. Va. 1952.
A proposed new formula for the distribution of state aid for schools prepared by a research staff under the supervision of R. L. Johns, professor of school administration, University of Florida.

EWALD, BILL, AND MERLE HENRICKSON. *Neighbor Flap Foot: The City Planning Frog.* Pp. 56. Illustrated by Bill Ewald, Jr. Henry Schuman, Inc., New York 21. 1952. $2.50.
The tale of a talking frog and a city boy, written by an architect and a teacher and settlement-house worker, presents problems of city living in an attractive and informative manner with emphasis on what the individual can do to make the community a safer, saner, and more pleasant place in which to live.

FALVEY, FRANCES E. *Student Participation in College Administration.* Pp. xi + 206. Bureau of Publications, Teachers College, Columbia University, New York 27. 1952. $4.00.
An examination of the present status and emergent trends of student participation in college administration with the suggestion that there is need for additional research in this field. Extensive bibliography and a comprehensive index.

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With an introduction by Sir John Maud, this is an important and discerning account of the accomplishments of an outstanding British educator who at one time had close connections in the United States.

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Dr. Hough, former dean, Drew Theological Seminary, explores the minds as well as the events of the lives of Aristotle, Cicero, Erasmus, Irving Babbitt, and Paul Elmer More. He believes that true humanism is always Christian and that "the profoundest study of man leads on to a belief in God."

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Descriptions of the many ways in which teachers are using commercial recordings to increase the pupils' appreciation and enjoyment of the varied forms of literature. Includes a bibliography of 500 titles.

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While prepared specifically for the use of members of boards of education and administrators in Colorado, the volume contains material that could prove useful in other states.

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Intended for children in the junior and senior high school, this is an interesting and informative volume in the Man and His World Series.

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With a foreword by A. J. Carlson, professor emeritus of physiology, the University of Chicago, this is another volume in the Man and His World Series.

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A volume in the McGraw-Hill Series in Sociology and Anthropology. The author has been guided by two objectives: to break with the confinement of the study of racial and cultural relations to those of the United States and to give more of a world orientation than has been customary; to set the study into the framework of the organic whole of emerging sociological theory.

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Published by the UN Department of Public Information, this small brochure presents many interesting items of information about the history and struggle of this important organization.

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